Aneurysmal Bone Cyst Embolisation – An Effective And Safe Endovascular Approach.
Case Reports And Literature Review


INTRODUCTION: Aneurysmal bone cysts (ABC) are benign osteolytic hemorrhagic lesions with highly erasive and expansible course owing to their architecture, that can lead to pathologic fractures and affect growth plates. It consists of characteristic multiple blood-filled cavities of variable size that are separated by connective tissue septa, determining hemodynamic disturbances that predispose to recurrence, even after treatment. Due to its aggressive features treatment goals aim to stop progression, prevent fractures, reduce recurrence and control symptoms. Surgery, pharmacological management and radiotherapy are classical approaches, but less invasive procedures, as selective arterial embolisation (SAE) emerge as an alternative thesis. SAE can be performed as preoperative adjuvant to reduce hemorrhage or as primary treatment in hostile surgical accesses.

CASE 1: A 16 year-old men had a history of low-back pain and difficulty walking. MRI and CT demonstrated a destructive lesion of the L5 vertebra consistent with an aneurysmal bone cyst, confirmed by percutaneous CT-guided biopsy. Patient went to preoperative selective embolization with 100-300 µm Bead-Block (Biocompatibles UK Ltd) microspheres, followed by surgical resection after 48 hours. There was resolution of the symptoms and the patient remains without any evidence of recurrence.

CASE 2: A 17 year-old men with mild leg weakness and numbness after strenuous physical activities. Imaging studies demonstrated a destructive sacral lesion. Patient went to selective embolization with 100 µm Embozene microspheres (CeloNova BioSciences, Newman, GA). The patient asymptomatic and the post-operative CT scan shows persistent, but significantly reduced lesion.

DISCUSSION: Despite surgical resection presents good results, sacral and lumbar lesions may be challenging, with considerable morbidity. Preoperative embolisation of the feeding arteries reduces intraoperative bleeding, reduces the size of the lesion, relieves pain and induces new bone formation. For those reasons surgery may be performed soon after the procedure, before a collateral blood supply is established. SAE appears to be an effective and safe alternative treatment in these circumstances, but the relationship with adjacent structures, and existence of arteriovenous fistula inside the tumor must be carefully evaluated to avoid embolic complications. SAE can also be repeated if necessary.

CONCLUSION: SAE is a feasible and successful technique with low rates of complications and can be considered currently a first-line treatment of ABC, specially in poorly accessible surgical areas, leading to good lesion control and remission of symptoms.

Figure 1. Coronal (a) and (b) CT scans and MRI reconstruction (c and d) showing invasive and multifocal sacral bone cyst. Figure 2. Sequential angiogram showing initial (a) and selective (b and c) angiogram demonstrated a near-complete reduction in the vascular supply to the tumor. Figure 3. Axial and coronal post-operative CT scan showing reduction in lesion's diameters.

Figure 2. Axial and coronal postoperative CT scan showing reduction in lesion's diameters.